

IN THE CLAIMS

We claim:

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sub A1
1. A contact comprising:
a conductive film;
an opening having a top and bottom wherein said bottom is formed on
said conductive film, said opening having a first sidewall and second sidewall
wherein said first sidewall is opposite of said second sidewall, and wherein said first
10 sidewall has a stair step configuration wherein said first sidewall is closer to said
second sidewall at said bottom of said opening than at the top of said opening; and
a conductor formed on said first sidewall of said opening and on said
bottom of said opening on said conductive film.

15 2. The contact of claim 1 wherein said second sidewall has a second stair
step configuration.

3. The contact of claim 1 wherein said conductor is aluminum or
aluminum alloy.

4. The contact of claim 1 wherein said first sidewall has a slope of less
than 2-1.

25 5. A contact comprising:
a contact opening having a bottom on a interconnection, said contact
opening having a first and second laterally opposite sidewalls, wherein said first
sidewall comprises:

a first vertical side extending up from said bottom;

a first horizontal surface extending from said first vertical side to a second vertical side, said second vertical side further spaced from said second sidewall than said first vertical side;

a second horizontal surface extending from said second vertical side to a third vertical side wherein said third vertical side is spaced further from said second sidewall than said second vertical side; and

a conductor formed on said first sidewall and on said interconnection in the bottom of said contact opening.

6. The contact of claim 1 wherein said conductor is an aluminum or an aluminum alloy.

7. A contact comprising:
a first film stack having a first part and a second part separated by a first gap, said first film stack having a top conductive film;

a second film stack formed on said first film stack, said second film stack having a first part and a second part separated by a second gap formed over said first gap so as to expose said top conductive film of said first film stack, said second film stack having a top conductive film; and

a continuous conductive contact film formed on said top conductive film on said second film stack and on said top conductive film of said first film stack in said second gap.

8. The contact of claim 7 further comprising a third film stack having a top conductive film, said third film stack formed over said second film stack, said third film stack having a first part and a second part separated by a third gap over

said second gap wherein said third gap is larger than said second gap so as to expose said top conductive film of said second film stack and wherein said continuous conductive film is formed on said top conductive film of said second film stack in said third gap.

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9. The contact of claim 7 wherein said first film stack comprises a top P+ silicon film formed on a silicide film which is formed on a P+ silicon film which is formed on a P- silicon film which is formed on a antifuse layer.

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10. The contact of claim 9 wherein said second film stack comprises a top N+ silicon film formed on a silicide film which is formed on a N+ silicon film which is formed on a N- silicon film which is formed on a antifuse film.

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11. The contact of claim 7 wherein said first film stack comprises a top N+ silicon film formed on a silicide film which is formed on a N+ silicon film which is formed on a N- silicon film which is formed on a antifuse film.

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12. The contact of claim 11 wherein said second film stack comprises a top P+ silicon film formed on a silicide film which is formed on a P+ silicon film which is formed on a P- silicon film which is formed on a antifuse layer.

13. The contact of claim 7 wherein said continuous conductive contact film comprises a top P+ silicon film formed on a silicide film.

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14. The contact of claim 7 wherein said continuous conductive contact film comprises a top N+ silicon film formed on a silicide film.

15. The contact of claim 7 wherein said continuous conductive film is aluminum or an aluminum alloy.

16. A method of forming a contact comprising:
5 forming a first film stack having a first vertical end;
forming a second film stack on said first film stack said second film stack having a second vertical end laterally offset from said first vertical end so as to expose a portion of said first film stack; and
forming a conductive film on said second film stack and on said
10 exposed portion of said first film stack.

17. The method of claim 16 further comprising forming said conductive film onto an interconnection formed beneath a dielectric wherein said interconnection is formed beneath said first vertical end of said first film stack.

18. The method of claim 16 wherein said conductive film is formed by sputter deposition.

19. The method of claim 18 wherein said sputter deposited film is an
20 aluminum or aluminum alloy.

20. A method of forming an electrical contact between multiple layers comprising:
forming a first film stack having a top conductive layer on an
25 insulating layer, said first film stack having a first vertical end;
forming a second film stack having a top conductive layer on said first film stack, said second film stack having a second end offset from said first end of

said first film stack so as to expose the top conductive film of said first film stack;
and

forming a continuous conductive contact film on said top conductive
film of said second film stack and on said exposed portion of said top conductive
5 film of said first film stack and through said insulating layer to an interconnection
located beneath said first vertical end.

21. The method of claim 20 wherein said top conductive film of said first
film stack and said top conductive film of said second film stack are doped silicon
10 films.

22. The method of claim 20 wherein said continuous conductive contact
film is a silicide film.

23. The method of claim 22 wherein said silicide film is titanium silicide.

24. A method of forming a contact comprising:
forming a first interconnection;
forming an interlayer dielectric over said first interconnection;
20 forming a first film stack having a first top silicon film on said
interlayer dielectric wherein said first film stack has a first edge above said
interconnection;
forming a second film stack having a second top silicon film, wherein
said second film stack is formed on said first film stack and has a second edge on
25 said first film stack;
forming a second fill dielectric on said first film stack and on said first
fill dielectric;

forming a third film stack having a third top silicon film and a lower oxide film on said second film, and on said second fill dielectric;

etching an opening through said top silicon film of said third film stack to form an opening in said silicon film above said edge of said second film stack and
5 above said edge of said first film stack; and

etching an opening through said lower oxide layer to reveal said second top silicon film of said second film stack, through said second fill dielectric on said first film stack to reveal said first top silicon film of said first film stack and through said first fill dielectric adjacent to said edge of said first film stack and
10 through said interlayer dielectric above said interconnection to reveal said interconnection.

25. The method of 24 further comprising forming a silicide film on said exposed top silicon film of said first film stack and on said exposed top silicon film
15 of said first film stack and on said interconnection and on said top silicon film of said third film stack.

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